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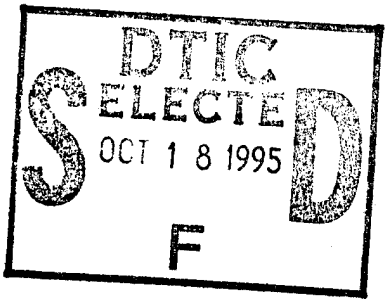

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Report 94-33

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NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND
BETHESDA, MARYLAND

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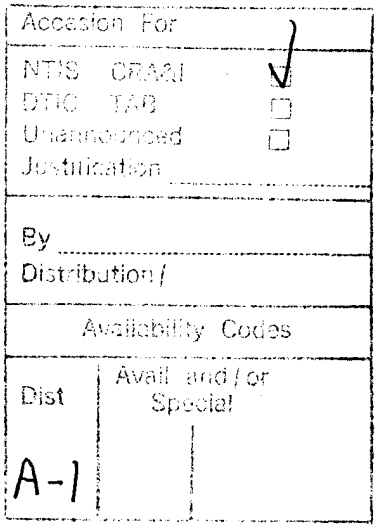

Medical Information Systems and
Operations Research Department

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Abstract

The menu items in the MEDTAG, an automated medical data documentation system, were assessed to verify their comprehensiveness in the variety of injuries, illnesses, treatments, and other related information that can be encountered and documented in the battlefield. The menu items were compared to items from 13 sources of battlefield and trauma information. The source items were categorized by how well the MEDTAG could document them and were then reviewed and verified by staff members of the Field Medical Service School. The findings show that 93% of the source items could be documented by the MEDTAG, which suggests that the menu items are quite comprehensive. Most of the items that could not be documented fall into the category of "Patient Conditions." A new MEDTAG prototype is under development that will have increased memory expansion, which will allow for many menu item additions, especially in the "Patient Conditions" area.

EVALUATION OF THE DOCUMENTATION CAPABILITIES OF THE NAVY'S FIELD MEDICAL DATA COLLECTION PROTOTYPE DEVICE (MEDTAG)

Complete, accurate documentation of battle casualty management is essential (Department of the Navy, 1990). It provides important medical information to subsequent treatment facilities, it becomes a part of permanent clinical records, and it has significant administrative and epidemiological applications. For these reasons, current medical doctrine specifies that corpsmen carry booklets of the Field Medical Card-DD1380 (FMC) into battle and fill out one or more cards for each casualty encountered. The FMC is designed to chronicle important field medical information, including injury description and treatment given at the first echelon of care, as well as the casualty's identification and other personal data. A study by Wilcox, Galarneau, and Fitzgerald (1993) showed that under simulated battlefield conditions it takes 3 min 26 s on average to fill out the FMC with complete, high-quality information.

Corpsmen on the battlefield, unfortunately, have a very limited time to spend with each casualty and, by necessity, most of that time is spent securing a safe position and administering lifesaving treatments to the patient. Thus, the critical nature of the injury and the urgency of the hostile situation often prevent medical personnel from completely and accurately filling out the FMC. In fact, a review of battlefield records indicates that FMCs are rarely used during combat (Wilcox et al., 1993).

Even when the card is properly completed, several other factors contribute to the deficiency of the current system: the booklets and cards are easily lost or damaged, they are difficult to use at night, a writing instrument is required but not always available, and handwriting is often illegible. Because of these drawbacks, the nature of the injury and the full extent of the treatment given can be unclear or unknown to the next care provider. This may create delays and misdiagnoses as the casualty is seen at successive echelons of care.

In response to these problems, the Navy developed the concept of an electronic medical data collection device (MEDTAG) that would be able to store important medical history items which could be viewed on a small display. It is proposed that such a device be worn by the troops when called to action and, if needed, used by medical personnel to retrieve information about the casualty and to enter data about the injury/illness and treatment provided.

Evaluations conducted by NHRC have tested the feasibility of the MEDTAG and have shown promising results. For example, the two-button (yes/no) method of entering data expedited data input, and field corpsmen quickly learned this process of data entry. The backlit screen, which the user can switch on or off, was shown to enhance nighttime use (Galarneau & Wilcox, 1993a).

In a field study, Navy corpsmen who had advanced field medical training used the

MEDTAG prototype and FMCs to record data under simulated battlefield conditions. The simulated "casualties" wore plastic moulages representing standard injuries (sucking chest wounds and amputated limbs). The results showed that: (1) The corpsmen using the MEDTAG took significantly less time to record the information and had significantly more accurate and reliable data, (2) more than 90% of the medical data for the standard injuries could be documented using the MEDTAG in an average of only 2 min 13 s, and (3) 80 to 90% of all information specified on the FMC could be captured in an average of approximately 40 s using the "activation sequence" (Galarneau & Wilcox, 1993b).

Since the MEDTAG prototype has shown the potential to provide faster, more accurate field medical data, it becomes important to know its capacity to document the full range of medical problems, treatments, and patient conditions which could be encountered on the battlefield. The purpose of this study was to review MEDTAG's menu elements and determine if they are comprehensive enough to sufficiently fulfill the battlefield casualty documentation requirements.

Method

Description of MEDTAG Prototype

A functional MEDTAG prototype (Figure 1) was created that allows the user to maneuver through a series of menus that presents items in an ordered presentation. Two types of menu structures accomplish this (Fortney, Rosen, & Chu, 1991). The first, called the "activation sequence," consists of prompted menus designed to elicit the most crucial medical facts needed in the field in the most timely manner possible (Appendix A). The second, the "extended menu sequence," is used for documenting more detailed information when time permits (Appendix B). Documentation with the current MEDTAG prototype is achieved by moving through a series of menus and selecting one of more than 200 items which, when selected, are stored in memory as codes.

Two buttons are used in the documentation process. The "no" button moves a cursor through the menu items and the "yes" button selects what is to be documented. The items fall into the following categories: assessment, treatment, condition, disposition, and reassessment. An area in the MEDTAG software called "help" is designed to provide lifesaving information and list the items that have been documented. Within the assessment category, there are 62 (52 specific, 10 general/"other") possible injuries/illnesses available for documentation, as well as 71 possible anatomical locations. A total of 48 different treatments can be documented, along with 14 patient conditions. Several other items are designated as qualifiers, such as "right," "left," "open," or "closed." Also incorporated into the MEDTAG software is the automatic calculation of the Glasgow Coma Scale (Hedges, Feero, Moore, Haver, & Shultz, 1987) and the Revised Trauma Score (Champion, Sacco, & Copes, 1989).

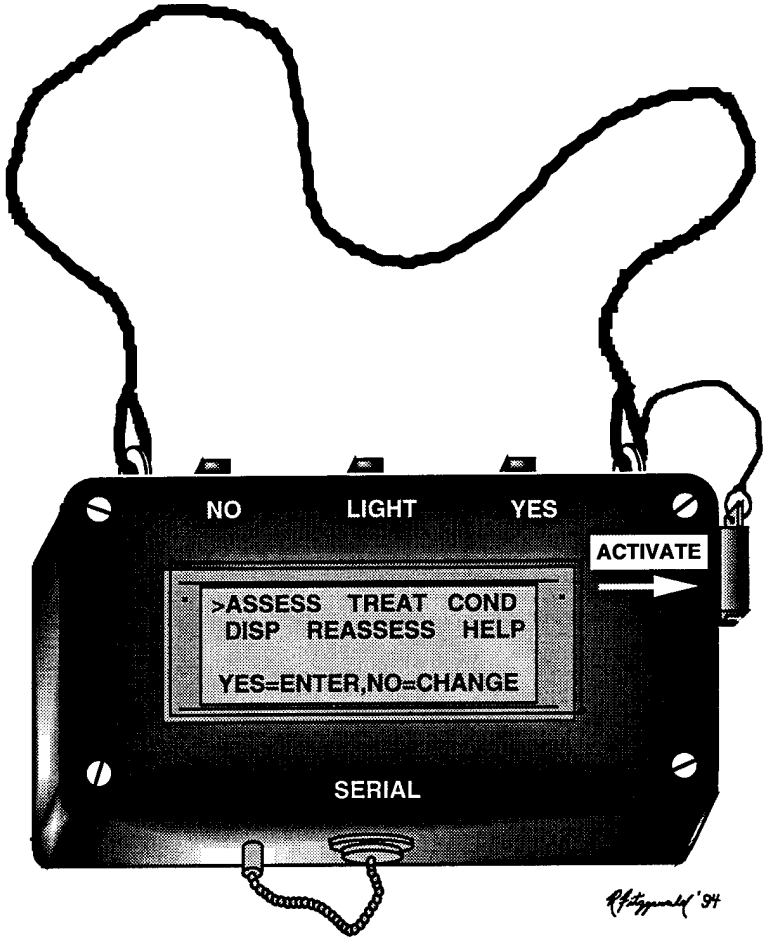

Figure 1. MEDTAG II field test prototype.

Field Medical Documentation Material

Following an exhaustive review of battlefield medical treatment reports, as well as civilian accident and trauma cases, a set of 13 databases were assembled containing more than 2,500 documentable medical items. These items were derived from a wide variety of medical sources (Appendix C). They include data collection forms, hostile action databases, reports, and material derived from individuals with field medical knowledge. All data sources were chosen for their relevance to field medical documentation, especially in the combat environment.

Procedure

Each specific MEDTAG documentation element (menu item) was placed into a database, which became the master file against which all other elements were compared. Each source was similarly broken down into specific elements (i.e., types of injuries and illnesses, treatments, anatomical locations and conditions) and these were also entered into individual databases. A program was designed to compare the source items to the MEDTAG menu items. They were categorized based upon the precision with which they could be documented by the existing MEDTAG terms. Where possible, each source item was associated with a MEDTAG menu item and assigned a category number which represents the level of documentation precision achieved.

To assist in the comparison process, numerous references were assembled (Appendix D). Using those references, the filtering process was undertaken by comparing every source item to the menu items in the MEDTAG prototype. Depending on the precision of the match, source items were either assigned a category number, held for further review, determined to be outside the scope of first echelon documentation, or labeled as too general or inappropriate for comparison. Ultimately, those items held for review were later given a category number or were determined to be out of the scope of first echelon documentation. The following are the definitions of the category numbers and how they were assigned:

Category 1. Each item (e.g., fracture, morphine, respiratory illness, ear) from the source databases were compared to the menu items available in the MEDTAG. When a source element was labeled in precisely the same terminology as the MEDTAG item, it was considered to be an exact match and assigned to Category 1. Items which represented a subset of the MEDTAG elements were also considered matches (e.g. plurals). If the MEDTAG term matched only partially or not at all, the source item was deemed a nonmatch and considered for one of the other categories.

Category 2. An item was accepted and assigned to Category 2 if the difference was only in semantics and not in meaning between the MEDTAG's menu element and the source item. This applies to synonyms (immersion foot vs. trench foot), forms of the word (abraded wound vs. abrasion), and abbreviations (G.S.W. vs. gunshot wound). As long as the definitions of the two elements were determined to be identical, then the term used in the MEDTAG was deemed sufficient for documenting that particular element.

Category 3. The third category addressed the issue of acceptable alternatives for elements not in the MEDTAG. To be considered a Category 3 item, the source item would have to reflect only a very minor change in meaning from the MEDTAG menu item. For a location item, the alternative would have to be in close proximity or have a similar function to be "acceptable" (e.g., thumb vs. finger). For treatment and injuries/illnesses, the alternative would have to allow the next care provider to be able to correctly determine what treatment was given or what was assessed and to be able to make the correct medical decisions (e.g., incision vs. laceration).

Category 4. For all elements remaining, a determination was made as to whether a source item could be appropriately documented in a general manner, or as "other" at a higher, more general level without losing vital information. If so, it was assigned to Category 4. It is important to note that a generalization is acceptable (and often desirable) if: (1) the care provider's understanding of the situation is limited, (2) the event occurs extremely infrequently, (3) the condition is beyond the knowledge or capabilities of the care provider (e.g., determination of an injury by an x-ray when an x-ray machine is not available), and/or (4) it does not affect the next provider's understanding and decision-making capability.

Category 5. Source items that could not be associated with one of the MEDTAG items (i.e., assigned to Categories 1 through 4) were assigned to Category 5.

Review of Category Assignments

After all of the source items were assigned a category number, a compilation was made of Categories 2, 3, 4, and 5. Each MEDTAG menu item was placed on a separate page, followed by the Category 2, 3, and 4 items that were associated with it. Category 5 items were on a separate list since they were not associated with a specific MEDTAG menu item. All of these items were then reviewed by instructors at the Field Medical Service School (FMSS; Camp Pendleton, CA), one of two facilities where Fleet Marine Force (FMF) corpsmen are trained. They evaluated, altered, and/or verified each item to ensure its appropriateness.

Example of Categorization Process. The source item is "X-RAY." "X-RAY" is not in the MEDTAG, so it does not belong in Category 1. There is not a different term in the MEDTAG that means "X-RAY," so it does not belong in Category 2. No item similar to "X-RAY" is a good alternative, nor is there an item in the MEDTAG that it could be generalized to. Therefore, it does not belong in Category 3 or 4. The term is assigned to Category 5, until it is reviewed. Upon review, it is determined that "X-RAY" is not an option at the first echelon and is therefore deemed an inappropriate item for the MEDTAG.

Results

The 13 databases yielded 2,612 items. Some items (700) were duplicated between the different databases. There were 848 items found to be inappropriate for first echelon battlefield documentation (see Appendix E for examples). This left a total of 1064 unique and relevant items which fell into Categories 1 through 5. Of the unique items, 986 were found to be

appropriately documented by the MEDTAG and fell into Categories 1 through 4, according to the FMSS personnel. All of the categorized items that could be documented are included in a list that shows how MEDTAG can sufficiently record each term (Appendix F). Overall, 93% of the unique items considered for this study were documentable by the MEDTAG (Figure 2).

The 78 items that could not be adequately documented (Category 5) are listed in Appendix G. They fall into 11 areas, 9 of which are related to patient conditions. This accounts for 67 of the 78 nondocumentable items. Ten of the remaining eleven items relate to treatment, and one is a problem type.

Discussion

Overall, it appears that the current MEDTAG prototype is capable of documenting a very high percentage of all relevant information needed at the first echelon of care, especially concerning injuries, physical locations, and treatments. It is important to note that although many items were generalized as "OTHER" (Category 4), this is acceptable and often warranted at the first echelon where diagnostic and treatment capabilities are limited. Since 9 of the 11 general areas of nondocumentable items relate to patient conditions, it appears that this is the one area of the current MEDTAG prototype that should be expanded. With additions and revisions, primarily to capture the data identified in Appendix G, the MEDTAG will be able to provide comprehensive documentation capabilities to the combat casualty care providers.

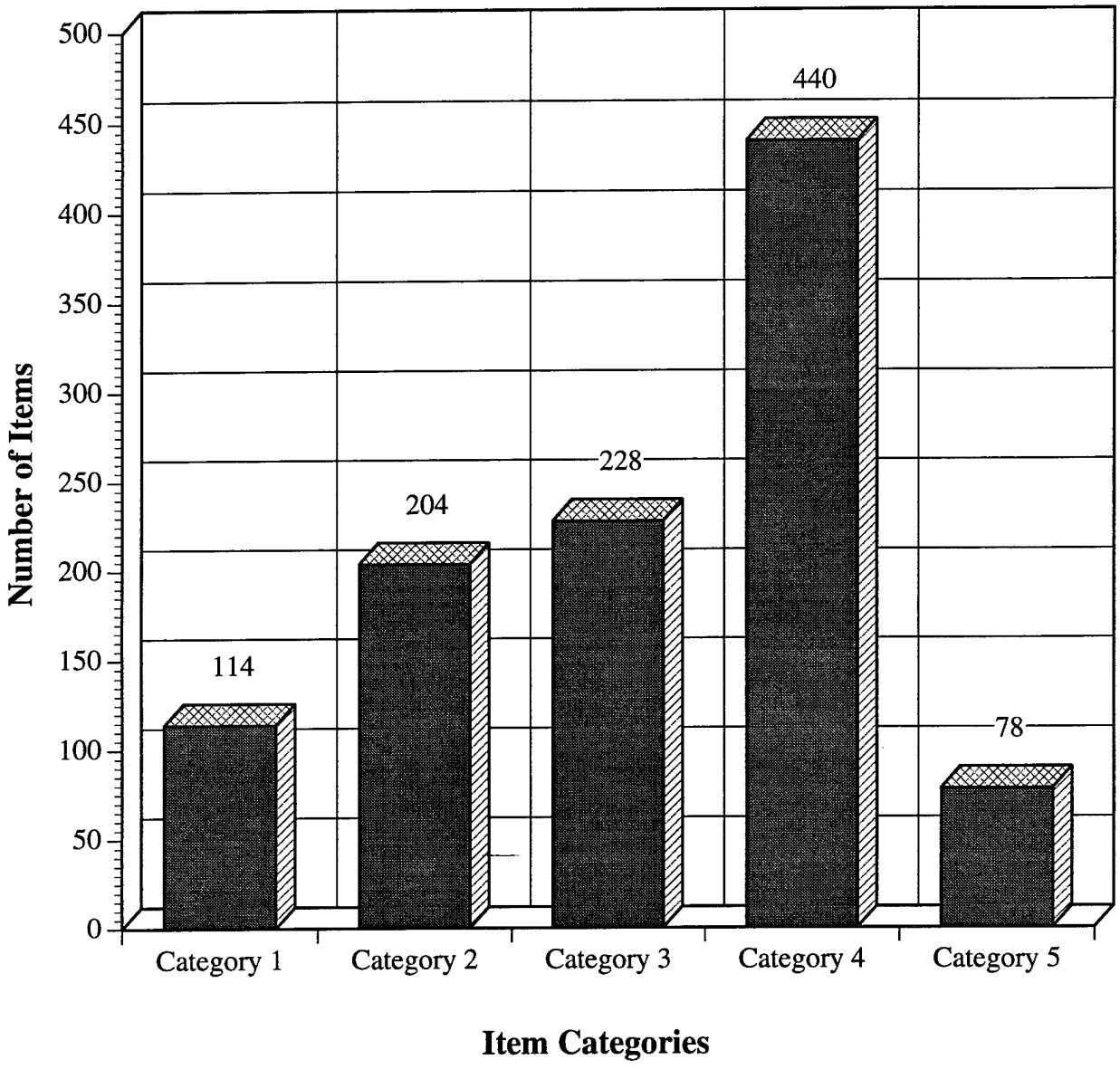

Figure 2. Results of MEDTAG documentation capability evaluation

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Author Notes

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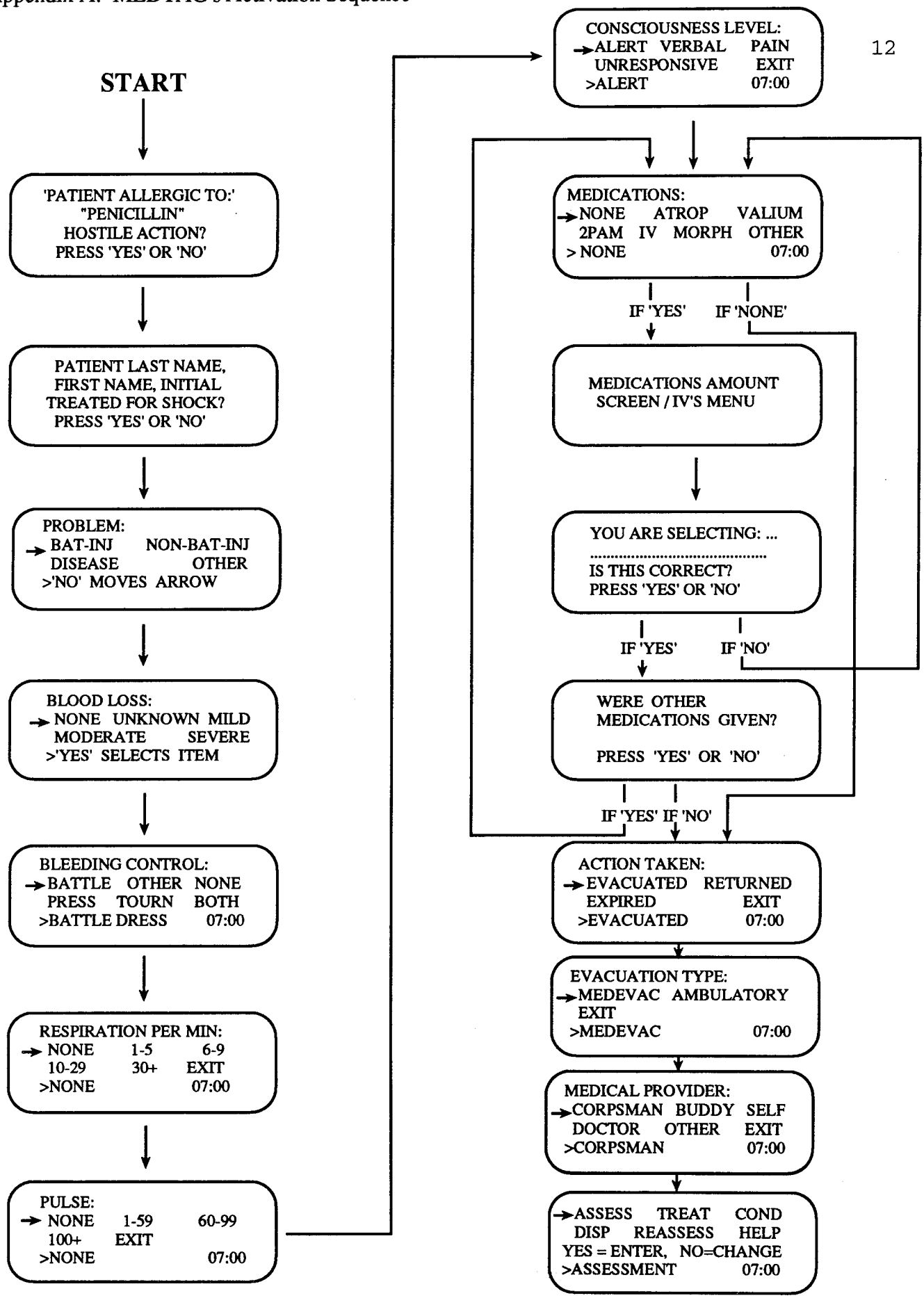
Appendix A: MEDTAG's Activation Sequence



Appendix B: MEDTAG's Extended Menus

MAIN MENU

```
→ASSESS   TREAT    COND
  DISP   REASSESS  HELP
YES=ENTER; NO= CHANGE
>ASSESSMENT        12:00
```

INJURY TYPE MENU (ASSESS)

```
PROBLEM TYPE:
→WOUND  HEAT/COLD  NBC
  DISEASE   MORE    EXIT
>WOUND              12:00
```

OTHER TISSUE WOUND MENU (MORE)

```
OTHER TISSUE WOUNDS:
→ STAB  PUNCTURE   BITE
  ABRASION OTHER   EXIT
> STAB              12:00
```

WOUND MENU

```
 WOUND TYPE:
→ TISSUE     MUSCLE/SKEL
  INTERNAL  MORE  EXIT
 >TISSUE            12:00
```

PUNCTURE EXIT MENU

```
        EXIT WOUND?

   PRESS 'YES' OR 'NO'
```

TISSUE WOUND MENU

```
TISSUE WOUND:
→LACERATE  GSW   FRAG
  EVISCER   MORE  EXIT
 >LACERATION        12:00
```

MUSCLE/SKELETAL MENU

```
MUSCLE/SKEL INJURY:
→ FRACT   DISLOC   AMP
  AVULSION  MORE   EXIT
>FRACTURE           12:00
```

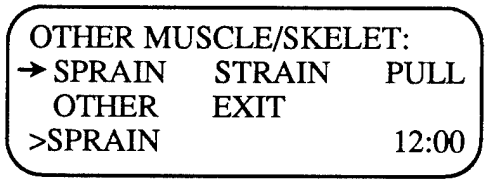
GUNSHOT EXIT MENU (GSW)

```
        EXIT WOUND?

   PRESS 'YES' OR 'NO'
```

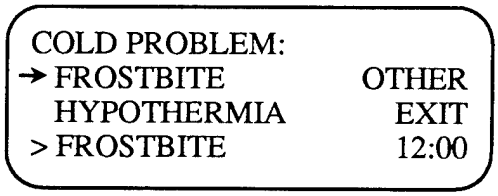
FRACTURE MENU (FRACT)

```
      OPEN FRACTURE?

   PRESS 'YES' OR 'NO'
```

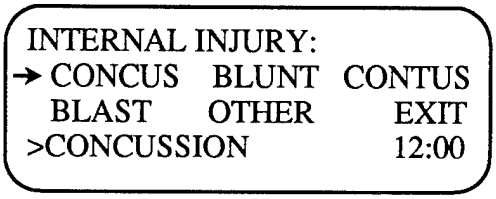
OTHER MUSCLE/SKELETAL MENU



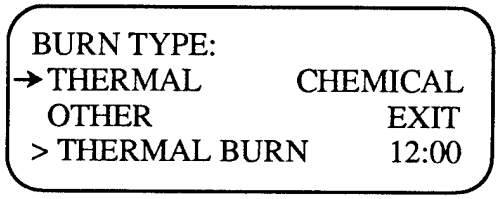
COLD PROBLEM MENU



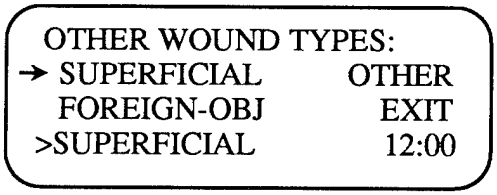
INTERNAL WOUND MENU



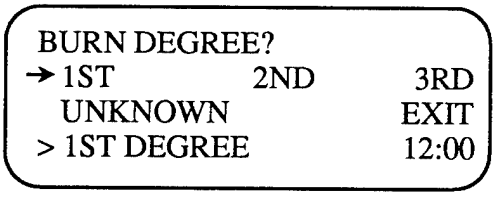
BURN TYPE MENU



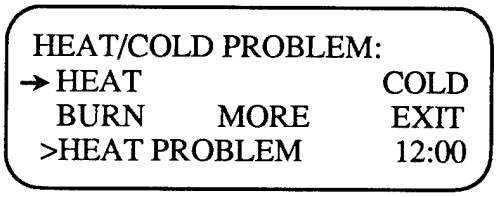
OTHER WOUND MENU



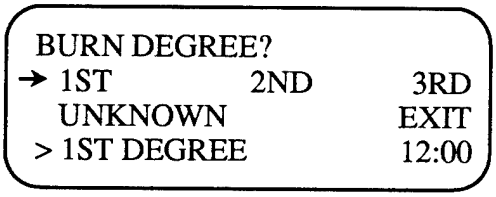
THERMAL BURN MENU



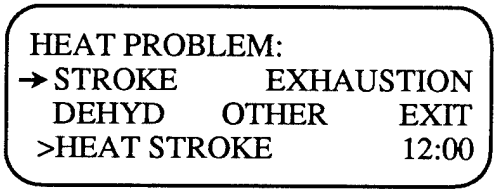
HEAT/COLD PROBLEM MENU



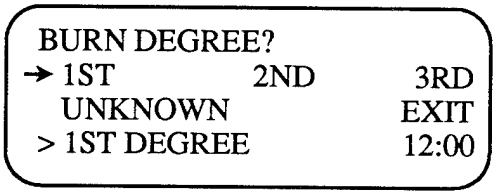
CHEMICAL BURN MENU



HEAT PROBLEM MENU

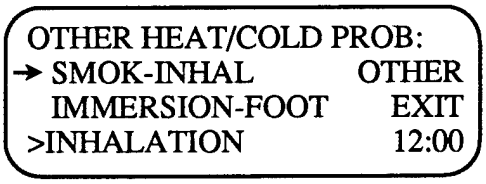


OTHER BURN MENU

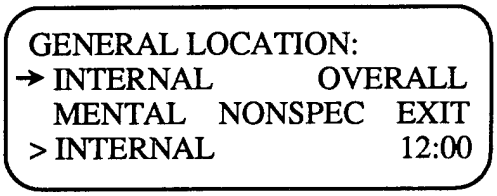


Appendix B: Cont.

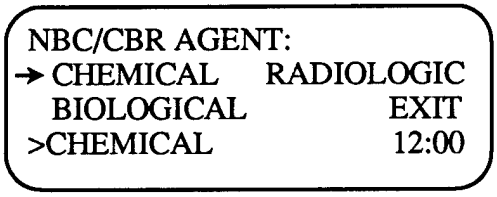
OTHER HEAT/COLD MENU



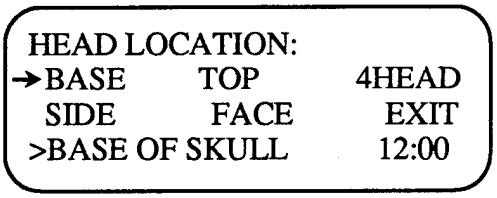
GENERAL LOCATION MENU



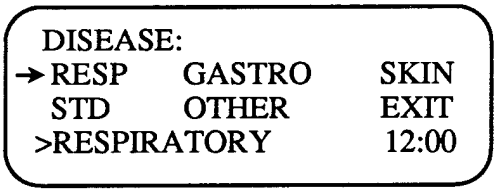
NBC/CBR AGENT MENU



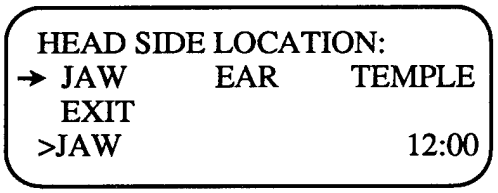
HEAD LOCATION MENU



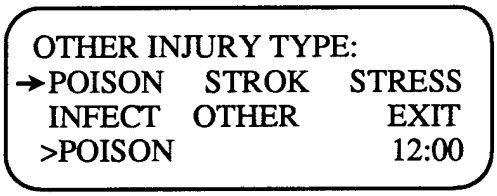
DISEASE MENU



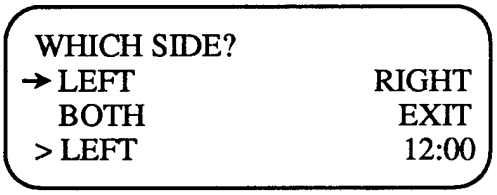
SIDE OF HEAD LOCATION MENU



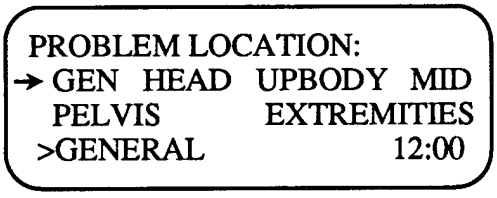
OTHER INJURY MENU



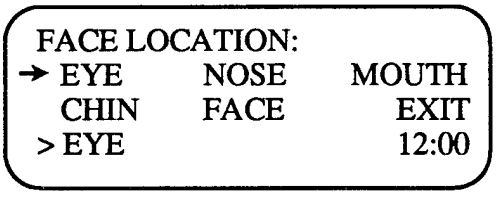
WHICH SIDE MENU



INJURY LOCATION MENU

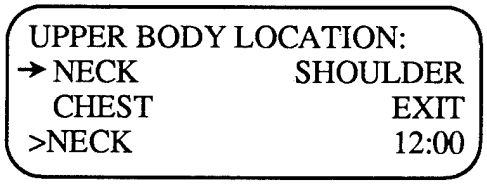


FACE LOCATION MENU

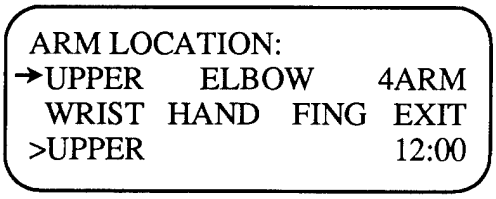


Appendix B: Cont.

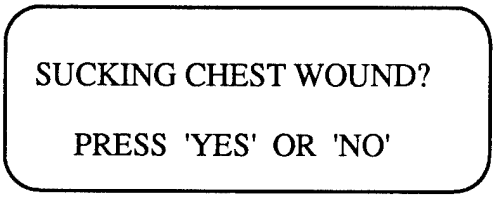
UPPER BODY LOCATION MENU



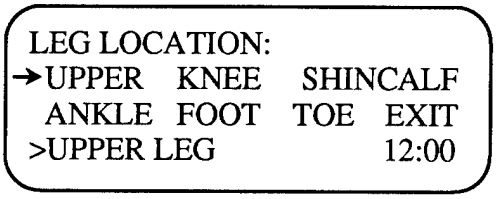
ARM LOCATION MENU



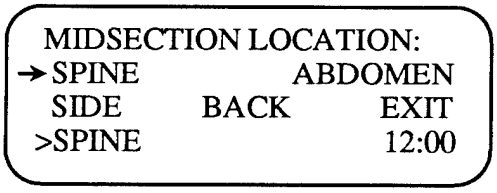
CHEST WOUND MENU



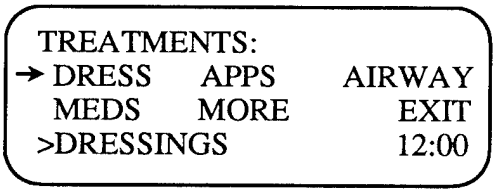
LEG LOCATION MENU



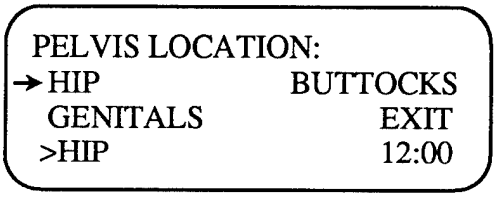
MIDSECTION LOCATION MENU



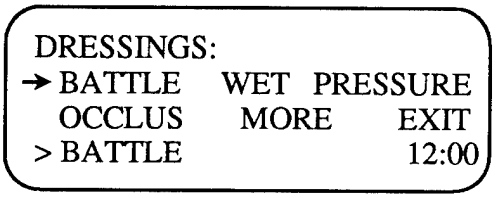
TREATMENTS MENU



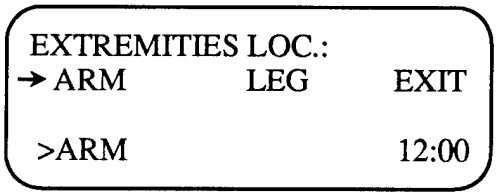
PELVIS LOCATION MENU



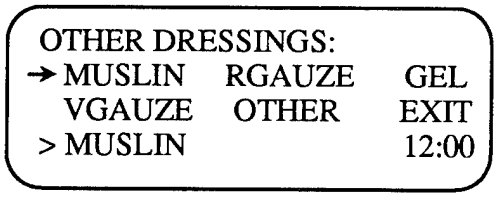
DRESSINGS MENU



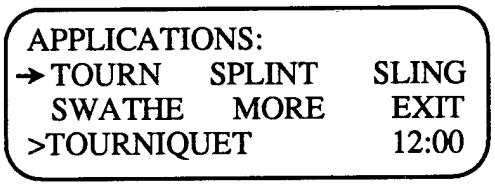
EXTREMITIES LOCATION MENU



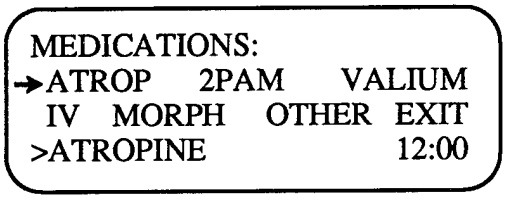
OTHER DRESSINGS MENU



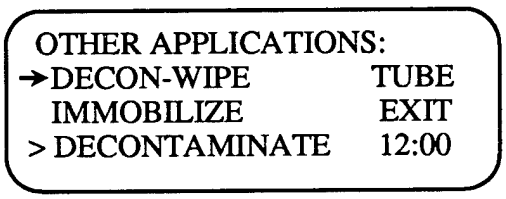
APPLICATIONS MENU



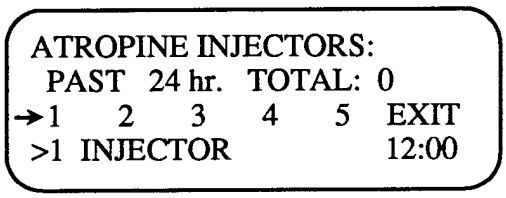
MEDICATIONS MENU



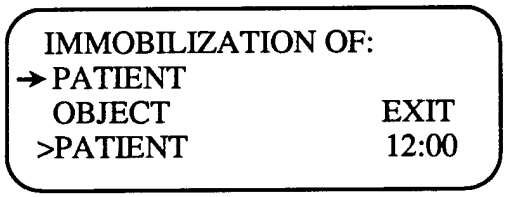
OTHER APPLICATIONS MENU



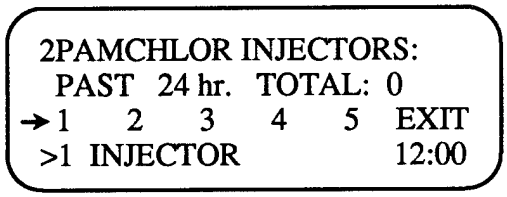
ATROPINE MENU



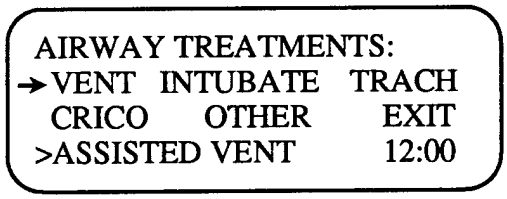
IMMOBILIZE MENU



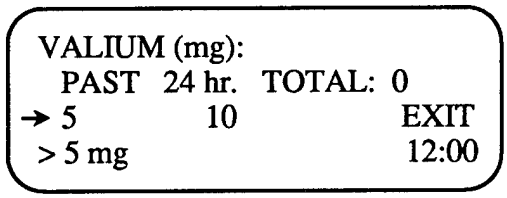
TWOPAM MENU



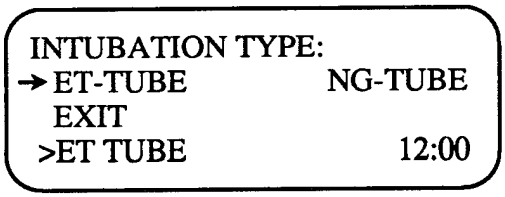
AIRWAY MENU



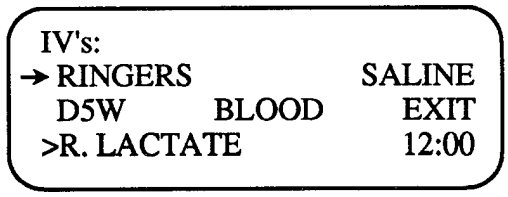
VALIUM MENU



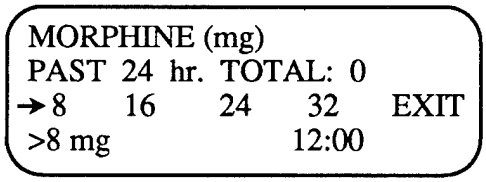
INTUBATE MENU



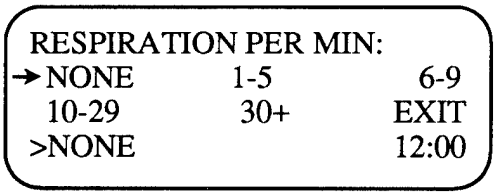
IV MENU



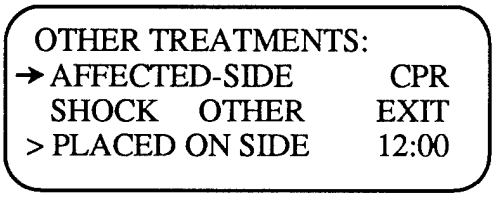
MORPHINE MENU



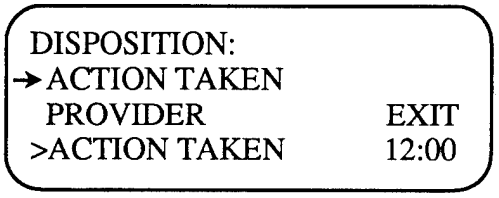
RESPIRATION MENU



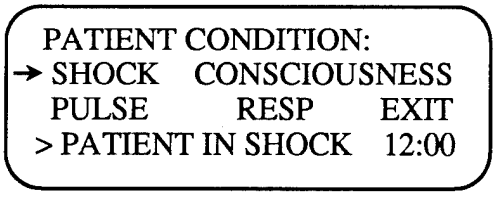
OTHER TREATMENTS MENU



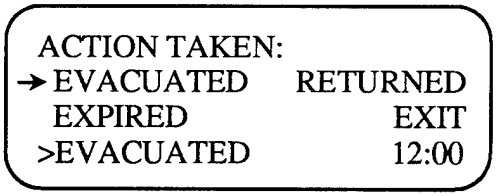
DISPOSITION MENU



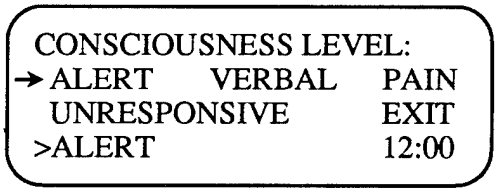
CONDITION MENU



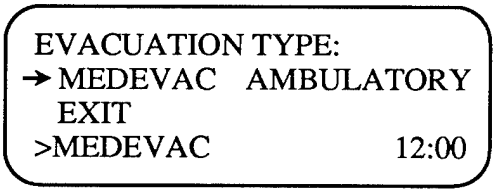
DISPOSITION TAKEN MENU



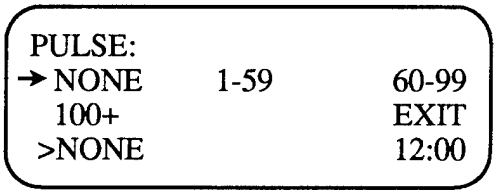
CONSCIOUSNESS MENU



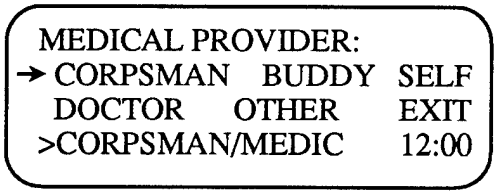
EVACUATION MENU



PULSE MENU

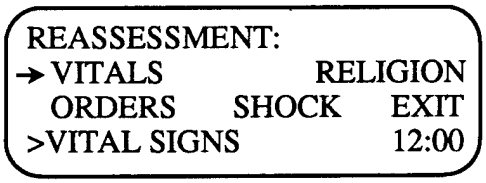


PROVIDER MENU

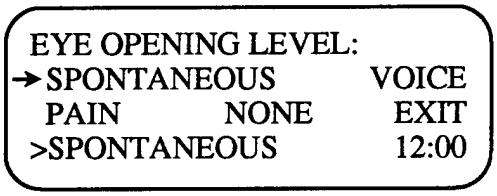


Appendix B: Cont.

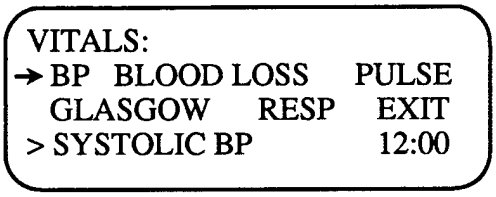
REASSESSMENT MENU



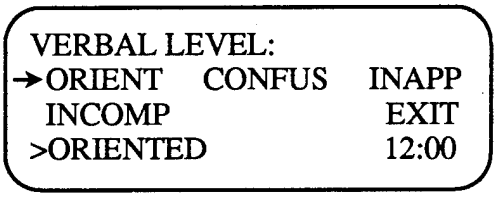
EYE OPENING MENU



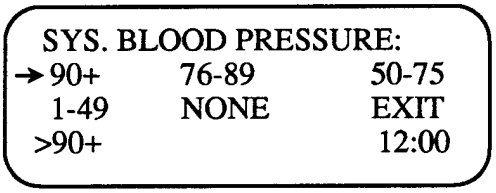
VITALS MENU



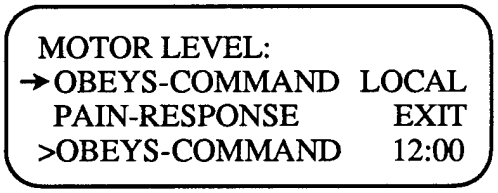
VERBAL MENU



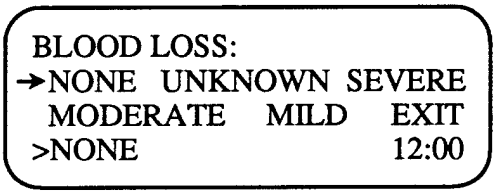
BLOOD PRESSURE MENU



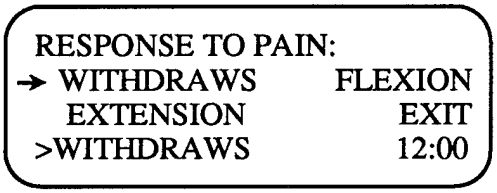
MOTOR MENU



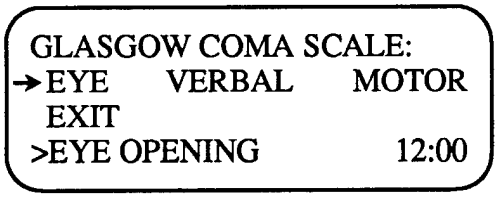
BLOOD LOSS MENU



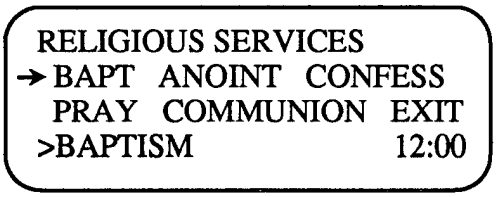
PAIN RESPONSE MENU



GLASGOW MENU



RELIGIOUS SERVICES MENU



Appendix B: Cont.

ORDERS MENU

```
ORDERS:
→ANTIBIOTICS      TETANUS
  MEDS      OTHER      EXIT
>ANTIBIOTICS          12:00
```

HELP/SHOW DATA MENU

```
HELP/SHOW-DATA:
→SHOW-DATA        SHOW-ID
  HELP/HOW-TO          EXIT
>SHOW-DATA            12:00
```

MEDICATIONS MENU

```
MEDICATIONS:
→ATROP   2PAM   VALIUM
  IV  MORPH  OTHER  EXIT
>ATROPINE             12:00
```

HELP MENU

```
HELP ON HOW TO:
→ENTER-DATA
  STOP-CHOKING         EXIT
>ENTER DATA           12:00
```

Appendix C: Sources Used to Compare to the MEDTAG Items

1. General and Medical Cards
   - A. NHRC Compilation From Research
   - B. Original Field Medical Card (DD Form 1380)
   - C. Revised Field Medical Card
2. Medical Checklists
   - A. Medical Encounter Data Sheet (MEDS, NHRC6320.20)
   - B. Triage Trauma Flow Sheet
   - C. Admitting & Sorting Worksheet
   - D. Triage and Revised Trauma Score (NHRC + SF600back)
3. Medical Forms
   - C. Vital Signs Record (SF511)
   - D. Casualty Receiving Trauma Flow Sheet (SF509)
4. Other Data
   - A. Trauma Study Data Form, Version 1.04. From Application of a Trauma Database to the Evaluation of an Expert System for Trauma Management, Prepared by Robert F. Fraser, NorthWest Research Associates, Inc., NWRA-CR-93-R110, 1994. Final report prepared for Geo-Centers, Inc.
   - B. Medical Statistics in World War II. Prepared and published under the direction of Lieutenant General Richard R. Taylor, Surgeon General, United States Army, Office of the Surgeon General, Department of the Army, Washington, D.C.: 1975.
   - C. Miscellaneous Data Sets
     - i. Desert Storm Data - Raw data taken directly from Triage and Revised Trauma Score forms completed at a trauma center in Al Khanjar.
     - ii. Fleet Data - Raw data taken directly from various medical data forms.
     - iii. Panama Data - Operation: Just Cause, CONUS Patient Data, Prepared by MAJ R.W. Campbell and Ms. M. Middleton, Directorate of Combat Development Academy of Health Sciences, Fort Sam Houston, Texas.
5. Reports
   - A. Medical Resource Allocation: Injury and Disease Incidence Among Marines in Vietnam, by CG Blood, DK Griffith, & CB Nirona. TR 89-36 Naval Health Research Center: San Diego, CA.

Appendix D: References Used for Justification

1. General
   - A. Common Knowledge of a Nonmedical Nature
     Standard Abbreviations
     Commonly Used Terms
   - B. Dictionary:
     Webster's II New Riverside University Dictionary. (1984). The Riverside Publishing Company.
   - C. Medical Dictionary:
     Dorland's Illustrated Medical Dictionary (26th ed.). (1985). W.B. Saunders Company.
   - D. NHRC Medical Researcher Consensus (ICD-9 Codes)
2. Training Manuals
   - A. Field Medical Service School Student Manual/Fleet Marine Force Manual
   - B. Nursing Procedures Manual (NAVMED P-5066-A)
3. Field Medical Authorities From FMSS and Other Areas
   - A. Combat Medical Personnel

Appendix E: Typical Examples of Items Inappropriate for First Echelon Documentation

X-RAY
VISION SCREENING
AUDIOGRAM
ESOPHAGEAL OBTURATOR AIRWAY
AIDS
LAB TEST(S)
NITROGLYCERINE
WARD NO.
PRESENTING PROBLEM
REGULAR DIET

Appendix F:

This list shows the *MEDTAG* items (those followed by * ***) and then source items that can be documented by each MEDTAG item. Source items can sometimes be documented by more than one MEDTAG term. Source items are written out as found in the original source.

Category No.	Reference	Item
*	***	*TIME AND DATE OF DOCUMENTATION*
2	1A	TODAY'S DATE
3	1A	HOUR AND DATE
3	1A	TIME OF ARRIVAL
3	1A	DATE
3	1A	TIME
3	1A	TIME ADMITTED
3	1A	MONTH-YEAR
3	1A	DAY
3	1A	HOUR
3	1A	HOUR TAGGED
3	1A	DATE TAGGED
*	***	*TIME AND DATE OF TREATMENT*
3	1A	MEDICATIONS TIME
4	1A	HOUR AND DATE MORPHINE
4	1A	HOUR AND DATE A.T. SERUM
4	1A	HOUR AND DATE ANTIBIOTICS
*	***	*TIME AND DATE OF ASSESSMENT*
3	1A	DATE INJURED
3	1A	TIME INJURED
3	1A	HOUR INJURED
3	1A	REASSESSMENT DATE
3	1A	REASSESSMENT TIME
3	1A	TIME OF INJURY
*	***	*REVISED TRAUMA SCORE (COMPUTED)*
2	1A	TRAUMA SCORE CALCULATION
2	1A	TRAUMA SCORE
3	1A	PREDICTED SURVIVAL
*	***	*GLASGOW COMA SCORE (COMPUTED)*
2	1A	G.C.S.
2	1A	GLASGOW COMA SCALE

4	3A	STABLE CONDITION
4	3A	MILD CONDITION
4	3A	MODERATE CONDITION
4	1A	CRITICAL CONDITION
4	1A	UNSTABLE CONDITION
*	***	*SPECIAL CONDITION FIELD 1*
2	2B	ALLERGIES
4	1A	FOOD ALLERGY
*	***	*SPECIAL CONDITION FIELD 2*
2	1A	DRUG REACTION
*	***	*RELIGION*
2	2B	REL.
*	***	*SPECIALTY CODE*
2	1A	N.E.C.
2	1A	M.O.C.
*	***	*UNIT*
2	1A	ASSIGNED TO UNIT
2	1A	ASSIGNED TO SHIP
2	1A	ASSIGNED TO BATTALION
2	1A	ASSIGNED TO SQUADRON
3	1A	PATIENT UNIT
4	1A	POST
*	***	*FORCE*
2	1A	BRANCH
2	1A	B.O.S.
2	1B	BRANCH OF SERVICE NAVY
2	1B	BRANCH OF SERVICE MARINE CORPS
2	1B	BRANCH OF SERVICE ARMY
2	1B	BRANCH OF SERVICE AIR FORCE
2	1B	BRANCH OF SERVICE OTHER
3	1A	BRANCH AND TRADE
2	1A	U.S.N.
2	1A	U.S.M.C.
2	1A	U.S.A.F.
2	1A	U.S. ARMY
2	1A	OTHER BRANCH
*	***	*NATION*

*	***	*SEX*
2	1B	SEX MALE
2	1B	SEX FEMALE
1	***	*SOCIAL SECURITY NUMBER*
2	1A	S.S.N.
2	1A	PATIENT NUMBER
2	1A	PATIENT S.S.N.
3	1A	SERVICE NUMBER
4	1A	NUMBER
*	***	*BLOOD TYPE*
2	1A	B.T.
3	1A	TYPE SPECIFIC
*	***	*RANK*
2	1B	GRADE
2	1B	PAYGRADE
2	1B	PAYGRADE E
2	1B	PAYGRADE W
2	1B	PAYGRADE O
2	1A	RATE
2	1A	PATIENT RANK
*	***	*DATE OF BIRTH*
2	2B	DOB
3	1A	PATIENT AGE
3	1A	AGE
*	***	*MIDDLE INITIAL*
2	1A	NAME MI
2	1A	NAME-MIDDLE
2	1A	MIDDLE NAME
*	***	*FIRST NAME*
2	1A	NAME FIRST
2	1A	NAME-FIRST
*	***	*LAST NAME*
2	1A	NAME LAST
3	1A	NAME
3	1A	PATIENT NAME
2	1A	NAME-LAST

*	***	*LACERATION*
2	1B	LACERATED WOUND
2	1A	LAC
*	***	*GUNSHOT WITH EXIT WOUND*
3	1A	EXIT WOUND?
4	1A	PERFORATION
4	1A	THRU & THRU
*	***	*GUNSHOT WITHOUT EXIT*
3	1A	GUNSHOT WOUND
2	2B	G.S.W.
3	1A	9MM WOUND
2	1A	GUNSHOT WOUND
2	1A	BULLET WOUND
4	1A	PENETRATING
4	1A	HOW MANY GUNSHOTS?
4	1A	ENTRANCE WOUND
*	***	*FRAGMENTATION WOUND*
2	1A	FRAG WOUND
3	1A	GRENADE WOUND
3	1A	SHRAPNEL INJURY
2	1A	SHRAPNEL WOUND
3	3A	METAL FRAGMENTS
4	1A	MULTIPLE FRAGMENT WOUNDS
*	***	*EVISCERATION*
*	***	*STAB WOUND*
2	1A	KNIFE WOUND
3	1A	BAYONET WOUND
4	1A	HOW MANY STAB WOUNDS?
*	***	*PUNCTURE WITH EXIT WOUND*
3	1A	EXIT INJURY
*	***	*PUNCTURE WITHOUT EXIT*
3	1A	PUNCTURE
3	1A	PUNCTURE WOUND
*	***	*BITE*
3	3A	INSECT BITE
3	3A	ANIMAL BITE

3	3A	REPTILE BITE
3	3A	HUMAN BITE
4	1C	RABIES EXPOSURE
*	***	*ABRASION*
2	1B	GRAZING
2	1B	ABRADED WOUND
*	***	*OTHER TISSUE WOUND*
3	3A	STING
3	1A	FLESH WOUND
3	1A	SOFT TISSUE TRAUMA
3	3A	INSECT STING
*	***	*OPEN FRACTURE*
2	1A	OPEN FX
2	1C	COMPOUND FRACTURE
4	1A	NOT SIMPLE
*	***	*CLOSED FRACTURE*
2	1B	FRACTURED
4	1C	COLLES FRACTURE
4	1A	MULTIPLE FRACTURES
2	1B	FRACTURE
4	1C	COMMINUTED FX
4	1C	EVICULAR FRACTURE
2	2B	FX
2	1C	SIMPLE FRACTURE
4	1C	COMMINUTED FRACTURE
4	1C	COMPRESSION FRACTURE
4	1C	DEPRESSED FRACTURE
4	1C	INCOMPLETE FRACTURE
4	1C	COMPRESSION
4	1C	GREENSTICK
4	1C	OBLIQUE FRACTURE
4	1C	SPIRAL FRACTURE
3	1A	SHATTERED BONE
*	***	*DISLOCATION*
3	1C	DERANGEMENT
3	1A	CHRONIC DISLOCATION
*	***	*AMPUTATION*
3	1B	TRAUMATIC AMPUTATION

*	***	*AVULSION*
3	1B	TEAR
3	1A	TRAUMATIC AVULSION
*	***	*SPRAIN*
3	1A	SPRAIN/STRAIN
2	1A	SPRAIN OF JOINT
*	***	*STRAIN*
3	1B	CERVICAL STRAIN
*	***	*PULL*
*	***	*OTHER MUSCLE/SKELETAL INJURY*
4	1D	TENDONITIS
4	1D	JOINT DERANGEMENT
4	1D	INTERVERTEBRAL DISC DISORDER
2	1D	MUSCULOSKELETAL OTHER
2	1A	MUSCULOSKELETAL PROBLEM
2	1A	MUSCULOSKELETAL
4	1A	LIGAMENT DAMAGE
4	1A	JOINTS GENERALLY
4	1A	CRUSHING
4	1A	LIGAMENT TEAR
4	3A	CREPITUS
4	1A	TORN CARTILAGE
4	3A	BURSITIS
4	1A	CRUSHING INJURY
*	***	*CONCUSSION*
4	1C	HEAD INJURY
4	1C	BRAIN INJURY
4	1A	HEAD TRAUMA
4	1A	CRANIO INJURY
*	***	*BLUNT TRAUMA*
3	1A	HIT BY FIST OR KICKED
*	***	*CONTUSION*
2	1C	BRUISE
3	1C	ECCHYMOSIS
3	1C	HEMATOMA
3	1A	OPEN CONTUSION

*	***	*BLAST TRAUMA*
2	1B	BLAST INJURY
*	***	*OTHER INTERNAL WOUND*
4	1A	RUPTURE
4	1A	MAJOR ORGAN DAMAGE
4	1A	ORGAN DAMAGE
4	1A	ARTERY DAMAGE
4	1A	NERVE DAMAGE
3	1A	CLOSED INJURY
4	1C	AIR EMBOLISM
4	1A	PULMONARY CONTUSION
*	***	*SUPERFICIAL WOUND*
3	1A	MINOR WOUND
2	1A	SUPERFICIAL
*	***	*OTHER WOUND TYPE*
4	1A	WOUND
4	1A	PROJECTILE WOUND
4	1A	CLOSED WOUND
4	1A	OPEN WOUND
3	1A	INJURY
3	1A	TRAUMA
2	1A	OTHER WOUND
3	1B	TRAUMATISM
4	1A	INTRAOCULAR FLUID LOSS
4	1A	ACUTE DISTRESS
4	1A	MULTIPLE TRAUMA
4	1A	SMALL WOUND
4	1A	DENTAL
4	1A	DECOMPRESSION
*	***	*FOREIGN OBJECT*
2	1A	FOREIGN BODY
3	3A	IMPALED OBJECT
3	3A	FOREIGN BODY RETAINED
*	***	*HEAT STROKE*
*	***	*EXHAUSTION (HEAT)*
2	1A	HEAT EXHAUSTION
*	***	*DEHYDRATION (HEAT)*

*	***	*OTHER HEAT PROBLEM*
3	1A	HEAT INJURY (PRIMARY)
3	1A	HEAT INJURY (SECONDARY)
3	1C	HYPERTHERMIA
3	1A	EFFECTS OF HEAT
*	***	*FROSTBITE*
*	***	*OTHER COLD PROBLEM*
3	1A	COLD INJURY
3	1A	OTHER EFFECTS OF COLD
4	1A	DEHYDRATION (COLD)
*	***	*HYPOTHERMIA*
*	***	*THERMAL BURN DEGREE 1*
*	***	*THERMAL BURN DEGREE 2*
*	***	*THERMAL BURN DEGREE 3*
*	***	*THERMAL BURN DEGREE UNSPECIFIED*
2	1A	BURN (HEAT)
2	1A	THERMAL BURN
2	1A	FIRE BURN
*	***	*CHEMICAL BURN DEGREE 1*
*	***	*CHEMICAL BURN DEGREE 2*
*	***	*CHEMICAL BURN DEGREE 3*
*	***	*CHEMICAL BURN DEGREE UNSPECIFIED*
2	1A	CHEMICAL BURN
4	3A	PHOSPHOROUS BURN
2	1A	BURN (CHEMICAL)
*	***	*OTHER BURN DEGREE 1*
3	1A	1ST DEGREE BURN
*	***	*OTHER BURN DEGREE 2*
3	1A	2ND DEGREE BURN

*	***	*OTHER BURN DEGREE 3*
3	1A	3RD DEGREE BURN
*	***	*OTHER BURN DEGREE UNSPECIFIED*
3	1A	BURN
4	3A	ELECTRICAL BURN
4	3A	ELECTROCUTION
4	3A	ELECTRIC SHOCK
4	3A	ELECTRICAL SHOCK
4	3A	HOT LIQUID BURN
4	3A	ELECT. SHOCK, WIRE
4	3A	ELECT. SHOCK, LIGHTNING
*	***	*INHALATION (SMOKE)*
*	***	*OTHER HEAT/COLD PROBLEM*
*	***	*IMMERSION FOOT*
2	2A	TRENCH FOOT
2	2A	BOMB SHELTER FOOT
2	2A	WATER BITE
*	***	*CHEMICAL AGENT EXPOSURE*
2	1A	CHEMICAL CONTAMINATION
4	1A	DELETERIOUS EFFECTS OF GAS
*	***	*RADIOLOGICAL EXPOSURE*
*	***	*BIOLOGICAL AGENT EXPOSURE*
4	3A	ANTHRAX
*	***	*RESPIRATORY DISEASE*
4	2A	TONSILLITIS
4	2A	INFLUENZA
4	2A	BRONCHITIS
4	2B	U.R.I.
4	1D	PHARYNGITIS
4	1D	ASTHMA
4	1D	SINUSITIS
4	1D	INHALATION DISORDER
4	1A	LUNG DISEASE
4	1A	HAY FEVER
4	3A	RESPIRATORY VIRAL SYNDROME
4	1D	PNEUMONIA

4	1D	RHINITIS
3	1D	RESPIRATORY OTHER
2	1A	RESPIRATORY PROBLEM
2	1A	RESPIRATORY
4	1C	COMMON COLD
4	1C	TUBERCULOSIS
4	1A	PNEUMOCOCCAL INFECT. OTHER
4	1A	STAPHYLOCOCCAL INFECTION
4	2B	UPPER RESPIRATORY INFECTION
4	3A	REACTIVE AIRWAY DISEASE
4	3A	PLEURISY
*	***	*GASTROINTESTINAL DISEASE*
4	1D	ACUTE GASTROENTERITIS
4	1D	ULCER
4	1A	BOTULISM
4	1C	PERITONITIS
4	1C	GASTRITIS
4	1A	BACTERIAL FOOD POISONING
4	1D	DIARRHEA
4	1D	CONSTIPATION
4	1D	APPENDICITIS
4	3A	DYSENTERY
3	1D	GASTROINTESTINAL OTHER
2	1A	GASTROINTESTINAL PROBLEM
4	1D	COLITIS
4	1C	CHOLERA
4	1C	NAUSEA
4	1C	EMESIS
4	3A	INTESTINAL STAPH. INFECTION
4	3A	INTESTINAL SALMONELLA INFECT.
4	3A	GASTROINTESTINAL VIRAL SYNDROME
4	3A	FOOD POISONING
4	1A	GASTRITIS
4	1A	ENTERITIS
4	1A	INTESTINAL OBSTRUCTION
4	1A	INFLUENZA
3	2B	GI
*	***	*SKIN DISEASE*
4	1D	FUNGAL INFECTION (TINEA)
4	1D	PYODERMA
4	1D	DERMATITIS
4	1D	SCABIES

4	1D	CELLULITIS
4	1D	FOLLICULITIS
4	1D	PEDICULOSIS
4	1D	WART
4	1C	FURUNCLE
4	1A	ERYSIPELAS
4	1A	PSORIASIS
4	1A	ECZEMA
4	1C	URTICARIA
4	1D	HEAT RASH
4	1D	INGROWN TOENAIL
3	1D	SKIN OTHER
2	1D	SKIN PROBLEM
4	1D	BOIL
4	1D	ABSCESS
4	1D	CARBUNCLE
3	1D	SKIN
4	1B	SUNBURN
4	1B	BLISTER
4	3A	ATHLETE'S FOOT
*	***	*STD*
4	1D	GONORRHEA
4	1D	NON-SPECIFIC URETHRITIS
4	1D	GENITAL HERPES VIRUS
4	1D	SYPHILIS
4	1C	LYMPHOGRANULOMA VENEREUM
4	1C	INGUINALE GRANULOMA
4	1D	CHANCROID
3	1D	STD OTHER
2	1D	STD PROBLEM
4	1A	CHLAMYDIA
4	1A	H.P.V.
4	1C	GONOCOCCAL INFECTION
4	1A	HERPES
4	3A	PELVIC INFLAMMATORY DISEASE
*	***	*OTHER DISEASE*
4	1D	OTITIS EXTERNA
4	1D	OTITIS MEDIA
4	1D	CONJUNCTIVITIS
4	1D	EYE/EAR OTHER
4	1D	ACTIVE CLINICAL TUBERCULOSIS
4	1D	FEVER OF UNDETERMINED ORIGIN

4	1D	HERPES SIMPLEX VIRUS
4	1D	EYE/EAR PROBLEM
4	1A	NON-GONOCOCCAL URETHRITIS
4	1A	FOOT DISEASE
4	1C	WEIL'S DISEASE
4	1A	ENCEPHALOMYELITIS
4	1C	RABIES
4	1C	FUNGI DISEASE
4	1C	HELMINTH DISEASE
4	1C	ARTHROPOD INFESTATION
4	1A	CANCER
4	1C	AMENORRHEA
4	1C	ANEMIA
4	1A	FEBRILE ILLNESS
4	1A	GANGRENE
4	1A	PARASITIC DISEASE
4	1A	BONE DISEASE
4	1A	RHEUMATIC FEVER
4	1A	BLOOD DISEASE
4	1A	JAUNDICE
4	1C	RICKETTSIAL DISEASE
4	1A	KERATOCONJUNCTIVITIS
4	1A	SANDFLY FEVER
4	1A	PARATYPHOID FEVER
4	1A	SMALL POX
3	1A	SICK
4	1A	INFECTIOUS ENCEPHALITIS
4	1C	INFECTIOUS MONONUCLEOSIS
4	1A	SPIROCHETES DISEASE
4	1C	KALA-AZAR
4	1C	TRYPANOSOMIASIS
4	1C	GLANDERS
4	1A	DIPHTHERIA
4	1A	BACTERIAL INFECTION, OTHER
4	1C	WHOOPING COUGH
4	1C	LEISHMANIASIS
4	1C	DENGUE
4	1A	UNDULANT FEVER
4	1A	PROTOZOAN DISEASE
4	1C	BRUCELLOSIS
4	1A	PLAGUE
4	1C	TULAREMIA
4	1A	YELLOW FEVER
4	1A	MALARIA

4	1A	JOINT DISEASE
4	1A	CYSTITIS
4	1A	MENSTRUAL DISORDER
2	1A	DISEASE OTHER
2	1A	DISEASE
4	1C	INFECTIOUS HEPATITIS
4	1A	MENINGITIS
4	1C	MUMPS
4	1C	TYPHOID
4	1C	DIPHTHERIA
4	1C	LARYNGITIS
4	1C	RUBEOLA
4	1C	SCARLET FEVER
4	1C	STREPTOCOCCAL SORE THROAT
4	1C	TONSILLITIS
4	1C	TUBERCULOSIS
4	1C	RUBELLA
4	1C	CHICKEN POX
4	1C	MENINGITIS, MENINGOCOCCAL
4	1C	STREPTOCOCCAL INFECT OTHER
4	1A	CONJUNCTIVAL
4	1C	CRUSH SYNDROME
4	1A	INFECTIOUS DISEASE
4	1A	BACTERIAL DISEASE
4	1A	INTOXICATION
4	1A	NEUROLOGICAL ABNORMALITY
4	1D	HEMORRHOIDS
4	1D	MOTION SICKNESS
4	1A	EMBOLISM
*	***	*POISON*
2	1B	POISONING
4	1C	SEPTICEMIA
4	3A	MORPHINE POISONING
3	3A	FOOD POISONING
4	3A	ACUTE POISONING
4	3A	TOXIC INHALATION
4	3A	BACTERIAL INTOXICATION
*	***	*STROKE*
*	***	*STRESS*
2	3A	MENTAL STRESS
3	3A	PSYCHOLOGICAL PROBLEM

3	1D	ANXIETY
4	1A	MENTAL DISORDER
3	1A	ACUTE REACTION TO STRESS
4	1A	CONDUCT DISORDER
3	1D	SITUATIONAL DISTURBANCE
4	1D	DEPRESSION
4	1D	BEHAVIORAL OTHER
4	3A	BEHAVIORAL PROBLEM
2	3A	COMBAT EXHAUSTION
4	3A	PSYCHOSIS
*	***	*INFECTION*
4	3A	STREPTOCOCCAL INFECTION
*	***	*OTHER INJURY TYPE*
4	1D	HERNIA
4	1D	IMMUNOLOGICAL REACTION
2	3A	OTHER INJURY OR PROBLEM
4	3A	SUICIDE
4	3A	STRANGULATION
4	3A	SUFFOCATION
4	1A	NEURO
3	1A	INJURY
4	1A	RETINA DETACHMENT
4	1A	PARALYSIS
4	1A	CORD DAMAGE
4	1A	DENTAL
4	1A	FALL
4	1A	DROWNING
4	1A	NERVE INJURY
4	1A	VASCULAR INJURY
4	3A	IMMERSION HAND
4	3A	HEAT SYNCOPE
*	***	*INTERNAL LOCATION*
4	3A	INTERNAL GENITAL ORGANS
2	3A	INTERNAL
4	3A	GLANDS/NODES
4	3A	POPLITEAL VEIN
4	1A	JOINT
4	3A	POPLITEAL ARTERY
4	3A	KIDNEY
4	3A	MEDIASTINUM/PLEURA
4	3A	PLEURAL CAVITY

4	3A	BILE DUCTS
4	3A	DESCENDING AORTA
4	3A	MAJOR ARTERIES/VEINS
4	3A	PARATHYROID
4	3A	PLEURAE
4	1C	URETERS
4	3A	NUCLEUS PULPOSUS
4	1A	CARTILAGE/LIGAMENT
4	3A	LOWER EXTREMITY NERVES
4	1A	LOWER EXTREMITY ART/VEINS
4	1A	CARTILAGE
4	1A	BURSA
4	1A	MUSCLE
4	1A	TENDON
4	1A	LIGAMENT
4	1A	SCIATIC NERVE
2	1A	ANTERIOR CRUCIATE
4	3A	MEDIASTINUM
4	1A	NERVES, GENERALLY
4	1A	ARTERIES/VEINS, GENERALLY
4	1A	SPINAL VEINS
*	***	*OVERALL LOCATION*
2	1A	WHOLE BODY
2	1A	BODY GENERALLY
3	1A	SKIN GENERALLY
3	1A	GENERAL LOCATION
3	1A	SOFT TISSUES GENERALLY
*	***	*MENTAL*
3	1A	PSYCHOGENIC
3	1A	PSYCH
*	***	*NONSPECIFIC BODY LOCATION*
2	1A	OTHER LOCATION
2	1A	UNSPECIFIC LOCATION
3	1A	OTHER PARTS AFFECTED
2	1A	UNKNOWN LOCATION
*	***	*BASE OF THE SKULL*
3	3A	HEAD
3	3A	SKULL
4	1A	CEREBRAL
4	1C	OCCIPITAL LOBE

4	3A	BRAIN & COVERINGS
4	3A	CRANIAL NERVES
3	1A	HEAD, OTHER
4	1A	HEAD ARTERIES/VEINS
3	1A	CRANIO
2	1B	BASILAR
4	3A	FACIAL NERVE
*	***	*TOP OF SKULL*
3	3A	SCALP
3	1C	PARIETAL
*	***	*FOREHEAD*
2	2B	FRONTAL REGION
3	1C	FRONTAL LOBE
*	***	*JAW*
2	3A	JAW BONES
3	3A	JAW JOINT
2	3A	MANDIBLE
3	1C	TEMPOROMANDIBULAR JOINT
*	***	*EAR*
*	***	*TEMPLE*
3	2B	TEMPORAL REGION
*	***	*LEFT SIDE OF THE BODY, HEAD OR EXTREMITIES*
2	1A	LEFT
*	***	*RIGHT SIDE OF THE BODY, HEAD OR EXTREMITIES*
2	1A	RIGHT
*	***	*BOTH SIDES OF THE BODY, HEAD OR EXTREMITIES*
2	1C	BILATERAL
*	***	*EYE*
2	1C	EYEBALL
3	1C	EYELID
4	1C	CORNEA
4	1C	CORNEAL
*	***	*NOSE*
3	1B	NASAL

*	***	*MOUTH*
3	1B	TONGUE
3	1C	LIPS
4	3A	CANINES (CUSPIDS)
4	1C	CEMENTUM
4	3A	DENTIN
4	3A	GINGIVA (GUMS)
4	3A	INCISORS
4	3A	MOLARS
4	3A	PREMOLARS (BICUSPID)
4	3A	PULP
4	3A	ROOT CANAL
4	1A	ENAMEL
4	1A	TEETH
*	***	*CHIN*
*	***	*FACE*
2	3A	FACIAL (INJURY)
2	3A	FACIAL
3	3A	CHEEK
4	1A	FACIAL BONES
4	1C	ZYGOMA
3	3A	OTHER BONES OF FACE
4	3A	FACE, OTHER
4	3A	MAXILLARY
4	3A	SINUSES
*	***	*NECK*
2	3A	NECK INJURY
4	3A	NECK NERVES
4	1A	BASE OF NECK
4	3A	LARYNX
4	3A	PHARYNX
4	3A	GLANDS IN NECK
4	1C	HYOID BONE
4	3A	NECK, OTHER
4	3A	NECK ARTERIES/VEINS
4	3A	UPPER NECK
4	3A	ESOPHAGUS
4	3A	EPIGLOTTIS
4	1C	TRACHEA
4	3A	THROAT
2	1C	CERVICAL

*	***	*SHOULDER*
3	1B	DELTOID
4	1B	CLAVICLE
4	1A	SHOULDER JOINT
4	1C	ACROMIOCLAVICULAR JOINT
3	1A	SHOULDER, OTHER
2	1C	ACROMION
*	***	*SUCKING CHEST WOUND*
2	2A	OPEN PNEUMOTHORAX
3	2A	PNEUMOTHORAX
3	2A	TENSION PNEUMOTHORAX
4	3A	HEMOPNEUMOTHORAX
*	***	*NONSUCKING CHEST WOUND*
3	3A	PERICARDIAL TAMPONADE
4	1C	HEMOTHORAX
4	1A	BRONCHI
3	1A	UPPER QUAD
4	1A	PULMONARY
3	3A	CHEST
3	1C	THORAX-CHEST
3	1C	LUNGS
3	1A	THORAX
4	1A	BRONCHI/TRACHEA
4	1A	THORAX JOINTS
4	1A	THORAX ARTERIES/VEINS
4	1A	THORAX NERVES
4	1A	HEART
3	1C	THORAX OTHER
4	3A	SUPRACLAVICULAR AREA
4	3A	INTERCOSTAL (RIB) MUSCLES
4	3A	RIBS
4	1C	ALVEOLI
4	3A	STERNUM
4	3A	DIAPHRAGM
*	***	*SPINE*
4	1A	SPINAL CORD
4	1A	CERVICAL SPINE
3	1A	BELOW CERVICAL SPINE
*	***	*ABDOMEN*
2	2B	ABD

4	1B	STOMACH
2	1A	ABDOMINAL
4	1A	ABDOMEN, OTHER
4	1C	COLON MESENTERY
4	1A	LARGE BOWEL
4	3A	SMALL BOWEL
4	1C	ABDOMINAL WALL
4	1C	APPENDIX
4	1C	ABDOMINAL NERVES
4	3A	INTESTINES
4	3A	MESENTERY
4	1C	OMENTUM
4	1C	PERITONEUM
4	3A	PANCREAS
4	1C	LIVER
4	1C	GALLBLADDER
4	1C	BILE PASSAGES
4	1C	SPLEEN
4	3A	BLADDER
4	3A	COLON
4	1A	ABDOMINAL ARTERIES/VEINS
4	1C	ABDOMINAL CAVITY
4	3A	ABDOMINOTHORACIC
2	3A	DUODENAL
*	***	*MID SIDE OF BODY*
*	***	*BACK*
2	3A	BACK INJURY
3	1B	LUMBAR REGION
4	3A	VERTEBRA
4	3A	VERTEBRAL JOINT
4	3A	SCAPULA
*	***	*HIP*
3	1C	PELVIS
4	1B	SACRUM
4	1A	PELVIC NERVES
4	1A	PELVIS BONES
4	1C	SACROILIAC JOINT
4	1A	PELVIS OTHER
4	1A	HIP JOINT

*	***	*BUTTOCKS*
4	3A	ANUS
4	3A	ANAL REGION
2	1C	GLUTEAL
4	3A	RECTUM
*	***	*GENITALS*
3	3A	GROIN/GENITAL
4	3A	PENIS
2	1A	GENITALIA
4	1A	GROIN
4	3A	TESTES
4	3A	SCROTUM
4	3A	GENITAL ORGANS, FEMALE
3	3A	G.U.
3	1C	PERINEAL REGION
4	3A	URETHRA
2	2B	EXTERNAL REPRODUCTIVE ORGANS
*	***	*UPPER ARM*
3	1C	HUMERUS
3	1C	BICEPS
4	1A	UPPER EXTREMITY
4	1A	UPPER EXTREMITY NERVES
4	1A	UPPER EXTREMITY ART/VEINS
4	1A	ARM OTHER
2	1A	UPPER EXTREMITY OTHER
4	1A	EXTREMITY
3	1A	ARM
4	1A	FULL ARM
3	1C	TRICEPS
*	***	*ELBOW*
4	1A	ELBOW JOINT
3	3A	GLENOHUMERAL JOINT
*	***	*FOREARM*
3	3A	ULNA
3	3A	RADIUS
4	1A	FULL ARM
3	3A	RADIUS/ULNA BOTH
*	***	*WRIST*
2	1C	CARPAL BONES

4	1C	WRIST JOINT
*	***	*HAND*
3	1A	FIST
4	1C	METACARPAL BONES
4	1A	KNUCKLES
4	3A	HAND JOINT
*	***	*FINGER*
3	3A	THUMB
3	3A	LITTLE FINGER
3	3A	MIDDLE FINGER
3	3A	INDEX FINGER
2	3A	FINGERTIPS
2	3A	PHALANGES
4	3A	FINGER JOINT
*	***	*UPPER LEG*
3	1C	FEMUR
2	1B	THIGH
3	1C	RECTUS FEMORIS
4	1A	LOWER LIMB
4	1C	HAMSTRINGS
4	3A	ABOVE KNEE
*	***	*KNEE*
3	1C	PATELLA
2	1A	KNEE JOINT
4	1C	MENISCUS OF THE KNEE
3	1B	KNEE CAP
*	***	*SHIN/CALF*
3	1C	TIBIA
3	1C	FIBULA
3	1A	CALF
4	1C	TIBIAL NERVE
3	1A	BELOW KNEE
4	1A	LOWER LIMB
3	1A	TIB
3	1A	FIB
4	1A	EXTREMITIES
3	1A	LOWER LEG
2	1A	LOWER EXTREMITIES
2	1A	FIBULA/TIBIA BOTH

2	1A	LEG OTHER
2	1A	LOWER EXTREMITY OTHER
3	1A	LEGS
*	***	*ANKLE*
3	1A	ANKLE JOINT
3	1C	ACHILLES
*	***	*FOOT*
2	1C	TARSAL BONES
2	1C	METATARSAL BONES
4	3A	CALCANEUS
4	1A	HEEL
2	1A	FOOT JOINT
*	***	*TOE*
3	1A	TOETIPS
4	1B	GREAT TOE
3	1A	TOE JOINT
4	3A	LITTLE TOE
4	3A	MIDDLE TOE
4	1A	3RD TOE
*	***	*BATTLE DRESSING*
3	1A	FIELD DRESSING
4	3A	DRY DRESSING
*	***	*WET DRESSING*
2	1A	WET DRSG
*	***	*PRESSURE DRESSING*
3	1A	DIRECT PRESSURE
4	3A	ACE WRAP
*	***	*OCCLUSIVE DRESSING*
*	***	*MUSLIN DRESSING*
*	***	*ROLLER GAUZE*
*	***	*WATER GEL*
*	***	*VASELINE GAUZE*

*	***	*OTHER DRESSING*
3	3A	DRESSING-TREATMENT
3	3A	DRESSING-APPLICATIONS
2	1B	BANDAGE
2	3A	DRESSING
2	3A	DRSG
*	***	*TOURNIQUET*
2	1A	TOURNIQUET TIME & DATE
3	1A	PRESSURE POINTS
*	***	*SPLINT*
3	3A	AIRSPLINT
3	3A	SOFT SPLINT
3	1A	BULKY SPLINT
*	***	*SLING*
*	***	*SWATHE*
*	***	*DECON WIPE*
3	1A	DECONTAMINATE
*	***	*CHEST TUBE*
*	***	*IMMOBILIZE PATIENT*
3	1A	IMMOBILIZE
3	1A	IMMOBILIZING BOARD
3	1A	COLLAR
*	***	*IMMOBILIZE OBJECT*
*	***	*ASSISTED VENTILATION*
3	1A	RESP. ASSISTED
*	***	*ET TUBE*
2	3A	ENDOTRACHEAL TUBE
2	3A	ENDOTRACHEAL INTUBATION
3	3A	INTUBATION
3	3A	INTUBATED AIRWAY
3	3A	ORAL INTUBATION
3	3A	OET
3	3A	NET

*	***	*NG TUBE*
2	2B	NASOGASTRIC TUBE
2	2B	NG
*	***	*TRACHEOTOMY*
2	1A	TRACH
*	***	*CRICOTHYROIDOTOMY*
2	1A	CRICH
*	***	*OTHER AIRWAY TREATMENT NOT SPECIFIED*
3	3A	NASOPHARYNGEAL
3	3A	NASAL AIRWAY
3	3A	NASAL INTUBATION
3	3A	ORAL AIRWAY
*	***	*ATROPINE 1 INJECTION*
2	1A	ATROPINE
*	***	*ATROPINE 2 INJECTIONS*
*	***	*ATROPINE 3 INJECTIONS*
*	***	*ATROPINE 4 INJECTIONS*
*	***	*ATROPINE 5 INJECTIONS*
*	***	*TWOPAM CHLORIDE 1 INJECTION*
2	1A	2PAM CHLORIDE
4	2A	N.B.C. ANTIDOTES
*	***	*TWOPAM CHLORIDE 2 INJECTIONS*
*	***	*TWOPAM CHLORIDE 3 INJECTIONS*
*	***	*TWOPAM CHLORIDE 4 INJECTIONS*
*	***	*TWOPAM CHLORIDE 5 INJECTIONS*
*	***	*VALIUM 5 MG*
3	1A	VALIUM
*	***	*VALIUM 10 MG*

*	***	*RINGERS LACTATE*
2	3A	RINGERS
2	1A	RINGERS LACTATE (IV)
2	2B	R.L.
2	3A	L.R.
3	3A	BLOOD VOLUME EXPANDERS
*	***	*NORMAL SALINE SOLUTION*
2	1A	SALINE (IV)
*	***	*D5W - 5% DEXTROSE SOLUTION*
4	3A	REPLACE FLUIDS
*	***	*BLOOD PRODUCT*
4	3A	WHOLE BLOOD (IV)
4	3A	BLOOD REPLACEMENT
3	1A	BLOOD UNIT
3	1A	BLOOD (CC)
4	3A	TOTAL BLOOD
4	3A	TYPE SPECIFIC
*	***	*MORPHINE 8 MG*
4	1A	MORPHINE
3	1A	DOSE MORPHINE
3	1A	MORPHINE-1ST
*	***	*MORPHINE 16 MG*
3	1A	MORPHINE-2ND
*	***	*MORPHINE 24 MG*
3	1A	MORPHINE-3RD
*	***	*MORPHINE 32 MG*
*	***	*OTHER MEDICATION*
4	3A	PRESCRIPTION(S)
4	3A	IMMUNIZATION(S)
4	3A	CURRENT MEDICATION
4	3A	ANESTHETICS
4	3A	ANTIFUNGAL (S.T.D.) TREATMENT
4	3A	ASPIRIN
4	3A	BUPIVICAINE
4	3A	CHLOROQUINE (MALARIA)
4	3A	EPINEPHRINE

4	3A	LASIX
4	3A	LIDOCAINE
4	3A	NARCAN
4	3A	MS04
4	1A	I.V.
2	1A	MEDICATIONS
4	3A	A.T. SERUM
4	3A	BACITRACIN
4	3A	BETADINE
4	3A	50% DEXTROSE SOLUTION
4	3A	PROPHYLACTIC
4	3A	PRIMAQUINE
4	3A	DOXYCYCLINE
*	***	*PLACE ON AFFECTED SIDE*
2	1A	AFFECTED SIDE
*	***	*CPR*
2	1A	CARDIOPULMONARY RESUSCITATION
*	***	*TREATED FOR SHOCK*
3	1A	LEG ELEVATION
4	1A	ELEVATE FEET (HEAT EXHAUSTION)
*	***	*OTHER TREATMENT NOT SPECIFIED*
2	3A	OTHER MINISTRATIONS
4	3A	DEBRIDEMENT
2	1A	OTHER TREATMENT
2	1A	TREATMENT
4	3A	C SPINE
4	3A	FOLEY CATH
4	3A	C-SPINE PRECAUTIONS
4	3A	O2
*	***	*IN SHOCK*
2	3A	SHOCK
4	3A	SEPTIC BLOOD STREAM SHOCK
4	3A	ANAPHYLACTIC
*	***	*ALERT*
*	***	*RESPONSIVE TO VERBAL STIMULUS*
4	1A	VERBAL
2	1A	RESPONSIVE TO VOICE

*	***	*RESPONSIVE TO PAIN*
2	3A	PAIN RESPONSE
3	3A	PURPOSEFUL RESP. TO PAIN
3	3A	UNPURPOSEFUL RESP. TO PAIN
3	3A	PAIN
3	3A	PURPOSEFUL MOVEMENT TO PAIN
*	***	*UNRESPONSIVE*
2	3A	UNCONSCIOUS
2	3A	TOTALLY UNRESPONSIVE
2	3A	BLACKOUT
3	3A	PREVIOUSLY UNCONSCIOUS
3	3A	COMATOSE
3	1A	NO VERBAL ABILITY
3	1A	NO SPEECH
3	1A	NO VERBAL RESPONSE
2	1A	VERBAL RESPONSE NONE
*	***	*NO PULSE*
2	3A	ABSENT PULSE
*	***	*PULSE 1 TO 59*
3	1C	HEART RATE
4	3A	DISTAL PULSE
4	3A	MAST PULSE
3	3A	CAROTID PULSE
3	3A	FEMORAL PULSE
3	3A	RADIAL PULSE
3	3A	QUAL PULSE
3	3A	CAP PULSE
*	***	*PULSE 60 TO 99*
*	***	*PULSE OVER 99*
*	***	*NO RESPIRATION*
2	1A	RR(O)
3	3A	ABSENT LUNG SOUNDS
*	***	*RESPIRATIONS 1 TO 5*
4	1A	RESPIRATORY RATE
2	1A	RR (1-5)

*	***	*RESPIRATIONS 6 TO 9*
2	1A	RR (6-9)
*	***	*RESPIRATIONS 10 TO 29*
2	1A	RR (10-29)
*	***	*RESPIRATIONS OVER 29*
2	1A	RR (>29)
*	***	*MEDEVAC*
2	3A	EVACUATED
2	3A	EVACUATION
2	1B	TRANSFER
2	1A	AIR EVACUATION
*	***	*AMBULATORY*
*	***	*RETURNED TO DUTY*
2	1A	R.T.D.
3	1A	FULL DUTY
3	1A	LIGHT DUTY
*	***	*EXPIRED*
2	1B	DECEASED
2	1A	DIED
4	1A	VITAL SIGNS, NONE PRESENT
2	2B	DEAD
*	***	*CORPSMAN MEDIC*
2	1A	MEDIC
3	1A	AIDMAN
3	1A	MEDICAL AID
2	1A	HOSPITAL CORPSMAN
*	***	*BUDDY AID*
*	***	*SELF AID*
*	***	*DOCTOR*
3	1A	MEDICAL OFFICER (SIGNATURE)
*	***	*OTHER MEDICAL PROVIDER*
3	1A	NURSE
4	1A	CHAPLAIN (SIGNATURE)

2	1A	PROVIDER
4	1A	CHAPLAIN
*	***	*BLOOD PRESSURE OVER 89*
2	1A	SBP >89
3	1A	SYSTOLIC BLOOD PRESSURE
*	***	*BLOOD PRESSURE 76 TO 89*
2	1A	SBP (76-89)
*	***	*BLOOD PRESSURE 50 TO 75*
2	1A	SBP (50-75)
*	***	*BLOOD PRESSURE 1 TO 49*
2	1A	SBP (1-49)
*	***	*NO BLOOD PRESSURE*
2	1A	SBP (0)
*	***	*NO BLOOD LOSS*
*	***	*UNKNOWN BLOOD LOSS*
3	1A	HEMORRHAGE
3	1A	BLEEDING
3	1C	HEMORRHAGIC
*	***	*SEVERE BLOOD LOSS*
*	***	*MODERATE BLOOD LOSS*
*	***	*MILD BLOOD LOSS*
*	***	*EYE OPEN SPONTANEOUS*
3	1A	SPONTANEOUS
*	***	*EYE OPEN TO VOICE*
3	1A	TO VOICE
*	***	*EYE OPEN TO PAIN*
3	1A	TO PAIN
3	1A	PAIN RESPONSE
*	***	*NO EYE OPENING*
3	1A	EYE OPENING, NONE

*	***	*ORIENTED*
4	1A	VERBAL RESPONSE
4	1A	SPEECH CHARACTERISTICS
3	1A	COHERENT SPEECH
2	1A	VERBAL RESPONSE ORIENTED
*	***	*CONFUSED*
2	1A	DISORIENTED
2	1A	VERBAL RESPONSE CONFUSED
*	***	*INAPPROPRIATE VERBAL RESPONSE*
2	1B	INCOHERENT SPEECH
3	1A	INAPPROPRIATE
2	1A	VERBAL RESPONSE INAPPROP.
*	***	*INCOMPREHENSIBLE SPEECH*
2	1A	GARBLED SPEECH
4	1A	INCOMPREH
2	1A	VERBAL RESPONSE INCOMPR.
*	***	*OBEYS COMMANDS*
3	1A	OBEY COMM
*	***	*LOCAL PAIN RESPONSE*
2	1A	LOCAL PAIN
*	***	*WITHDRAWS FROM PAIN*
2	1A	WITHDRAW PAIN
2	1A	WITHDRAW TO PAIN
*	***	*FLEXION TO PAIN*
2	1A	FLEXION PAIN
*	***	*EXTENSION TO PAIN*
2	1A	EXTENSION PAIN
*	***	*NO MOTOR SIGNS*
4	1A	MOTOR FUNCTION
2	1A	NO MOTOR RESPONSE
3	1A	MOTOR RESPONSE
*	***	*BAPTISM*

*	***	*ANOINTMENT*
2	1A	ANOINTING
*	***	*CONFESSION*
*	***	*PRAYER*
4	1A	OTHER RELIGIOUS SERVICE
*	***	*COMMUNION*
2	1A	HOLY COMMUNION
*	***	*ANTIBIOTICS*
4	1A	DOSE ANTIBIOTICS
*	***	*TETANUS*
4	1A	DOSE TETANUS TOXOID
4	1A	HOUR DATE TETANUS TOXOID
2	1A	TETANUS SHOT
2	1A	TETANUS TOXOID
*	***	*OTHER MEDICAL ORDER*
2	1A	ORDERS
3	1A	DOCTOR'S ORDERS
*	***	*INTERNAL INJURY*
*	***	*HOSTILE ACTION*
2	1A	ENEMY ACTION YES/NO
4	1A	LINE OF DUTY
2	1A	HOSTILE FIRE
*	***	*BATTLE INJURY*
4	1A	INJURED ASHORE
4	1A	INJURED ABOARD
2	1A	B.C.
4	1A	INJURED ON DUTY
2	1A	COMBAT WOUND
*	***	*NONBATTLE INJURY*
2	1A	N.B.I.
4	1A	INJURED OFF DUTY

*	***	*OTHER PROBLEM CATEGORY*
4	1D	DRUG ABUSE
4	1D	ALCOHOL ABUSE
4	1A	DRUG ADDICTION
4	1A	ALCOHOL DEPENDENCY
4	1A	ALCOHOL MISUSE
4	1D	GENERAL MALAISE/FATIGUE
4	1D	HEADACHE
4	1A	PREGNANCY
2	1D	OTHER MEDICAL PROBLEM
4	3A	EXHAUSTION
4	1A	SEIZURE
*	***	*NO DRESSING USED*
*	***	*PRESSURE DRESSING AND TOURNIQUET*
4	1A	BLEEDING CONTROL
4	1A	BLEEDING CONTROLLED

Appendix G: Items That Cannot Be Sufficiently Documented By The MEDTAG Prototype

The items are listed by category, followed by each specific item (bolded items):

I. Eye conditions
   - A. **PUPIL SIZE, PUPIL REACTION**
     - i. **P.E.R.L.A.**
     - ii. **PUPILS PINPOINT**
     - iii. **PUPILS UNEQUAL**
     - iv. **PUPILS DILATED & FIXED**
   - B. **VISUAL IMPAIRMENT**

II. Skin conditions
   - A. **SKIN COLOR**
     - i. **NORM SKIN COLOR**
     - ii. **PALE SKIN**
     - iii. **FLUSHED/RED SKIN**
     - iv. **CYANOTIC SKIN**
     - v. **ASHEN SKIN**
   - B. Skin moisture
     - i. **NORMAL SKIN MOIST.**
     - ii. **MOIST SKIN**
     - iii. **DRY SKIN**
   - C. Skin temperature
     - i. **HOT SKIN**
     - ii. **WARM SKIN**
     - iii. **NORMAL SKIN**
     - iv. **COOL SKIN**
     - v. **COLD SKIN**

III. Symptoms
   - A. **NUMBNESS**
   - B. **SWELLING, EDEMA**
   - C. **CLEAR DRAINAGE FROM EAR**
   - D. **BLOOD FROM EAR**
   - E. **CLEAR DRAINAGE FROM NOSE**
   - F. **BLOOD FROM NOSE**
   - G. **BLOOD FROM MOUTH**
   - H. Extremity movement
     - i. **MOVES ALL FOUR EXTREM., MOVES EXTREMITIES ON COMMAND**
     - ii. **MOVEMENT RIGHT ARM, MOVES RIGHT ARM**
     - iii. **MOVEMENT LEFT ARM, MOVES LEFT ARM**
     - iv. **MOVEMENT RIGHT LEG, MOVES RIGHT LEG**

v. MOVEMENT LEFT LEG, MOVES LEFT LEG

I. COMPROMISED AIRWAY

J. TENDERNESS

K. BATTLE'S SIGN

IV. Respiration

A. Lung sounds

i. CLEAR LUNG SOUNDS

ii. ABSENT LUNG SOUNDS

iii. COURSE/FINE RALES

B. Respiratory effort/quality

i. RESPIRATORY EFFORT NORMAL

ii. RESPIRATORY EFFORT SHALLOW

iii. LABORED BREATHING

iv. IRREGULAR BREATHING

v. DEEP BREATHING

V. CAPILLARY REFILL, BLANCH TIME

A. CAP. REFILL NORMAL

B. CAP. REFILL DELAYED

C. CAP. REFILL NONE

VI. Pulse/blood pressure

A. DIASTOLIC BLOOD PRESSURE

B. Pulse strength

i. STRONG PULSE

ii. WEAK PULSE

VII. PERCENT OF BSA

A. BSA <10%

B. BSA 10-19%

C. BSA 20-29%

D. BSA 30-39%

VIII. Chest/heart conditions

A. FLAIL CHEST

B. CARDIAC ARREST

IX. Treatment

A. FRACTURE REDUCTION

B. WASH W/SOAPY WATER

C. OROPHARYNGEAL AIRWAY

D. I.V.

i. I.V. LOCATION, I.V. SITE

ii. **I.V. VOLUME**

E. **PYRIDOSTIGMINE BROMIDE**

F. Chest tube side

i. **CHEST TUBE RIGHT SIDE**

ii. **CHEST TUBE LEFT SIDE**

iii. **CHEST TUBE BOTH SIDES**

X. Body temperature

A. **TEMP. C**

B. **TEMP. F**

XI. Problem type

A. **HEAT CRAMPS**

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The menu items in the MEDTAG, an automated medical data documentation system, were assessed to verify their comprehensiveness in the variety of injuries, illnesses, treatments, and other related information that can be encountered and documented in the battlefield. The menu items were compared to items from 13 sources of battlefield and trauma information. The source items were categorized by how well the MEDTAG could document them and were then reviewed and verified by staff members of the Field Medical Service School. The findings show that 93% of the source items could be documented by the MEDTAG, which suggests that the menu items are quite comprehensive. Most of the items that could not be documented fall into the category of "Patient Conditions." A new MEDTAG prototype is under development that will have increased memory expansion, which will allow for many menu item additions, especially in the "Patient Conditions" area.

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